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FIRST SPERM WHALE *(PHYSETER MACROCEPHALUS)* RECORD IN MISSISSIPPI

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ABSTRACT A sperm whale (*Physeter macrocephalus*) stranded on the south shore of Horn Island, Mississippi, represents the first record of this species in the state. The specimen, a neonate female, was euthanized at the stranding site. Tissue samples, blood samples, and stomach contents were analyzed following gross necropsy.

Introduction

On 16 March 1994, National Park Service (NPS) rangers patrolling Horn Island, Mississippi, reported a live whale stranding on the south shore. Horn Island, part of the Gulf Islands National Seashore, lies about 10 km south of the Mississippi mainland and forms part of the boundary between the Mississippi Sound and the Gulf of Mexico (Eleuterius 1978). In the southeastern United States, the bottlenose dolphin (*Tursiops truncatus*) strands in greater frequency than all other cetacean species combined (Odell 1991). During 1993 and 1994, the National Marine Fisheries Service (NMFS) received reports of 107 stranding events on Mississippi shores. Of the 107 strandings, 103 were bottlenose dolphins. Because occurrences of cetaceans other than bottlenose dolphins in Mississippi waters are unusual (Mead 1994), the NMFS laboratory in Pascagoula, Mississippi, was contacted. Personnel familiar with marine mammal strandings mobilized at the stranding site early that afternoon. The stranded animal was a sperm whale (*Physeter macrocephalus*), and this identification is the first record of this species in Mississippi. Details of this stranding event and a summary of the biological information obtained are included in this report.

Materials and Methods

The bulbous, blunt head, asymmetrically-positioned blowhole, distinctive dorsal hump, and size identified the stranded cetacean (Field ID. MS-0008) as a small sperm whale (see Leatherwood and Reeves 1983). Despite being immobilized, the whale took regular breaths and frequently emitted low-frequency clicks and groans. Physical examination of the urogenital slit established its sex as female. The teeth were unerupted and the overall length was 610 cm from the tip of the rostrum to the notch between the flukes. These criteria placed her in the late neonate/early weaning stage of life (Geraci and Lounsbury 1993). A sperm whale at this stage would require parental care, although nothing indicated the presence of another sperm whale in the area. Based on the Von Bertalanffly equation with parameters fitted by Banister 1969 (as reported by Rice 1989) for western Australian sperm whales, it was estimated that she was about three years old. From length-to-weight formulae summarized by Lockyer 1976 (as reported by Rice 1989), her estimated weight was between 1.7 and 2.7 metric tons.

Sperm whales typically inhabit oceanic waters at depths greater than 200 meters (Jefferson et al. 1993), and are known to frequent the deep water surrounding the Mississippi River delta (Mullin et al. 1994). Horn Island lies about 135 km northeast of the Mississippi River delta and 130 km from the nearest edge of the continental shelf. For this whale to have entered the shallow waters near Horn Island, it is likely she was weak, disoriented, ill, or had followed a sick mother.

Late that afternoon, NMFS and NPS personnel managed to wrest the whale from the beach and guide her to open water. Immediately, she turned around and swam back to the beach. The process was repeated several times and it was not until a park ranger started the outboard engine of his patrol boat that she began to swim away from shore. The boat followed the whale until she was several hundred meters offshore. Visual contact with the whale was lost near dusk.

On the morning of 17 March 1994, an NPS ranger found the same whale stranded on Horn Island about 2 km east of the previous day's stranding site (30°14.11 N, 88°44.32 W). NMFS personnel joined NPS rangers and personnel from Marine Life Oceanarium, Gulfport, Mississippi, at the site. The whale's color had changed conspicuously since the previous day's examination with a reddish tinge obscuring the normal charcoal-gray color.

She was much weaker than the day before, characterized by listlessness and infrequent vocalizations. The firmly beached animal could not be moved to a rehabilitation site with the available resources. Given the high probability of the whale's eventual death, euthanasia was decided upon to prevent further suffering. A veterinarian administered 20 cc of the barbiturate *Beuthansia-D Special*®[1] in the left pectoral fin and an additional 20 cc of the barbiturate into a vein on the dorsal side of the fluke. Within five minutes of the injection, the whale had lost reflexes to her eye, a practical indication of death.

RESULTS

Standard measurements were taken at the site and are filed at the NMFS laboratory in Pascagoula. Gross necropsy performed at the site revealed multiple, crater-like lesions across the whale's body and blood in the abdominal cavity. The blood vessels in the abdominal cavity and small intestine were cyanotic, the second stomach bloated, and areas around the bile ducts yellowish. Tissue samples from major organs including skin, heart, liver, small intestine, large intestine, eye, tongue, lung, brain, kidney, and several glands were removed for pathological examination. The organs were not weighed due to the remoteness of the stranding site. Blood samples were collected. The lower jaw and additional tissue samples were collected and later placed in frozen storage at the NMFS Pascagoula laboratory. The cranium was removed and taken to the NMFS Pascagoula laboratory at a later date. Several lesions, 2-5 cm in diameter, were removed for examination. Two live fish that remained attached to the whale were placed in preservative, later identified as whale suckers (*Remora australis*), and sent to the NMFS laboratory in Miami, Florida.

Samples of skin lesions, liver, perirenal fibroadipose, and lymph node material were examined by the Armed Forces Institute of Pathology (AFIP, #2444155-2), Washington, DC. Examination detected mixed gram-negative bacilli and ciliated protozoa in the skin lesions; however, the bacilli and protozoa may have been secondary invaders and not the initiating event. AFIP examination also revealed nonspecific hepatic congestion and a fatty change in liver hepatocytes; congestion is a common, terminal, finding and the fatty change may be normal. Hemorrhaging found in the perirenal fibroadipose tissue may have resulted from trauma associated with the stranding.

Blood analysis found several abnormalities. The white blood cell count was high. Hematocrit was elevated, indicating possible dehydration. Total bilirubin and SGOT (AST), both indicators of possible liver damage, were elevated. Creatinine was elevated, indicating possible kidney damage. Lymphocytes were elevated, indicating viral infection. LDH was elevated, indicating muscle/tissue damage which may have resulted from trauma associated with the stranding. CPK, a non-specific indicator, was elevated. The erythrocyte sedimentation rate, a prognostic indicator, was elevated to 89, a poor prognosis.

The whale's stomach contents were examined at the Marine Mammal Stranding Network Southeastern United States (SEUS) laboratory in Orlando, Florida. SEUS examination found the contents to consist of cephalopod beaks and beak fragments in the forestomach and the connecting stomach. Cephalopods are the staple diet of sperm whales in most oceans (Rice 1989). This is the smallest sperm whale with cephalopod beaks in its stomach cataloged in SEUS records (Barros, personal communication). No parasites were found in the stomachs.

DISCUSSION

Sperm whales are common in the oceanic Gulf of Mexico; once the species was numerous enough to support full-scale whaling operations in Gulf waters (Townsend 1935; Gunter 1954; Schmidly 1981). Townsend 1935 (as reported by Schmidly 1981) included many records of sperm whales from April through July in the northcentral Gulf of Mexico. Recent aerial surveys of the northern Gulf of Mexico sighted sperm whales in every season of the year (Mullin et al. 1994). Stranding records compiled by Schmidly (1981) and Jefferson et al. (1992) list 22 sperm whale strandings from the Gulf of Mexico. Strandings have occurred on the shores of Florida, Louisiana, and Texas, but not on Mississippi or Alabama shores. As of 1989, the sperm whale was not listed in Mississippi records (Jones and Carter 1989).

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[1] Manufactured by Schering Plough; use does not imply endorsement.

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